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**Owner's Project Requirements  
Document for  
South Laboratory Addition  
Washington State Public Health Laboratories**

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## 1.0 Executive Summary

The intent of the OPR (Owner's Project Requirements Document), is to detail the functional requirements of the proposed capital improvement project and the expectations for the building's use and operation. The OPR is considered a "living" document during the design phase of the project, and as such is subject to change as the design progresses. By establishing the project goals in a single document, the OPR becomes a record by which the Owner, and other parties involved in the project, can judge the degree of success in meeting the Owner's defined objectives and criteria. The Owner's Project Requirements form the basis from which all design, construction, acceptance, and operational decisions are made. The OPR is a document that evolves through each project phase.

The Washington State Public Health Laboratories (PHL) developed a 20-year master plan for the long-term development of the Shoreline DOH campus. The master plan development involved state and City of Shoreline leaders, community members, and agency staff. This 20-year blueprint detailed the DOH and PHL program needs including laboratory and administrative facilities. This project represents activities and facilities called for in Phase III of that plan.

The current Environmental Sciences Laboratory Wing (ELS) is approximately 10,000 gsf. The Public Health Laboratory's (PHL) master plan calls for the current ELS wing to be converted into a new molecular laboratory as part of the Microbiology Department with ELS moving to a new wing. Most of what was office space in the original building design has been converted to laboratory space due to additional testing and testing requirements and the influx of equipment required to do the testing. Additional testing and equipment has made the current ELS laboratory space inefficient and without flexibility to change as testing requirements grow. This project will add approximately 32,000 gsf of Laboratory, Office, Storage, Secure Storage, Conference Rooms, and Media Center to the PHL. While most spaces will be used by the ELS group, the conference rooms and media center will be used as needed by all staff of the PHL.

The ELS laboratory is broken into four sections: Administration, Environmental Chemistry & Radiation, Environmental Microbiology & Water Chemistry, and Chemical & Radiological Terrorism. Each of the sections has their own special needs. The Agency conducts many live news updates with statewide news outlets and the Media Center will serve as a location where Agency spokespersons can meet members of the media without disrupting other areas of the laboratory.

The new Administration space will have open office space for laboratory Chemist and Lab Technicians; large and small meeting spaces; desks for upper level chemists; offices for supervisors and managers; and lockers. The open laboratory spaces will have space for 16 Chemical Fume Hoods (CFH); 4 Biosafety Cabinets (BSC); and six open labs for equipment and processes. There will be closed labs for shellfish shucking and processing, an enclosed mouse colony, and an enclosed mouse bioassay room. The enclosed Radiation preparation laboratory includes a molten salt fusion station with a high volume CFH and Perchlorate & Hydrofluoric compliant hoods; SPE stations with ventilation; Acid waste neutralizations stations; Alpha, Beta, and Gamma counters with switch cabinets and data acquisition computer stations; and a darkened Liquid Scintillation Counter room. The enclosed Chemical and Radiological Terrorism lab will have one CFH; one BSC; locking storage cabinets for evidence and controlled substances. All laboratory sections will have storage for chemicals, tools, glassware, and supplies.

The new media center will include a podium for news releases, AV equipment, lighting, seating, a small conference room for news release prep., and a control room. The systems will have the ability for simultaneous press releases to press at the lab and also through video technology at the same time to other locations.

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## 2.0 Introduction

This Owner's Project Requirements (OPR) document outlines functional requirements of the project and expectations of how the facility and its systems will be used and operated.

This project will add approximately 31,000 sq. ft. of additional laboratory space including all support spaces, and an approximately 500-600 sq. ft. media conference center. The intent is that the addition will wrap around and between the existing administrative and laboratory wings. There will also be a certain amount of infrastructure work such as storm drainage revisions, road and parking revisions, and sustainable landscaping revisions to go along with the ELS laboratory requirements and needs.

The Owner will develop and update the OPR through program verification and schematic design, or until the Cx consultant is selected. The Cx consultant will then assume responsibility for refining and augmenting the OPR throughout programming, design, construction, and post-occupancy period of one year following Substantial Completion of construction. As decisions are made during the life of the project, this document shall be updated to reflect the current requirements of the Public Health Labs.

The Owner is the Washington State Department of Health, Washington State Public Health Laboratories. Terry Williams, Capital Project Coordinator, will be the Owner's representative. Primary users and stakeholders include the Environmental Laboratory Services (ELS) staff, IT staff, Agency & Laboratory Administration, and the laboratory's maintenance staff. The laboratory's maintenance staff will be responsible for operations and maintenance of the new areas.

It is also the Owner's intent that the new addition will meet ZNE or ZNE-C certification, be a minimum LEED Silver certified, and use sustainable energy sources, and building materials to the extent that the program allows.

## 3.0 Owner's Key Project Requirements

- Provide a state of the art laboratory space that meets the current needs of the Environmental Laboratory Services (ELS) program as well as any program expansion needs over the next twenty years. Current tests and equipment are:
  - Testing for shellfish biotoxins – Shellfish and crabs are tested for algal toxins. Clams for metals and inorganic arsenic. Instruments and Equipment used are mice, High Pressure Liquid Chromatograph (HPLC), High Pressure Liquid Chromatograph-Tandem Mass Spectrometers (HPLC-MS/MS), High Pressure Liquid Chromatography-Inductively Coupled Plasma-Reaction Cell-Mass Spectrometer (HPLC-ICP-RC-MS), Liquid Scintillation Counter (LSC), Freezers, Refrigerators, Centrifuges, and Solid Phase Extraction systems.
  - Water Bacteriology Testing – Testing for lead in drinking water for Washington State schools, testing for Legionella from water samples, Fecal Coliform (MTF) for growing Area Survey and Classification, Total Coliform and Fecal Coliforms for recirculating Water Systems (Wet Storage) and E-coli confirmations for marine or recirculating water samples. Equipment used are High Pressure Liquid Chromatography-Inductively Coupled Plasma-Reaction Cell-Mass Spectrometer (HPLC-ICP-RC-MS), polymerase chain reaction instrumentation centrifuge, refrigerators, Incubators, water baths, plate readers, and liquid handlers.

- Chemical Incident Response Laboratory – Tests human blood and urine specimens for heavy metals, cyanide, toxic chemicals, and volatile organic chemicals (VOCs) in support of the Washington State Emergency Preparedness and Response program. Instruments and equipment used are Gas Chromatography Mass Spectrometers (GC-MS), Inductively Coupled Plasma-Reaction Cell-Mass Spectrometer (ICP-RC-MS), High Pressure Liquid Chromatograph-Tandem Mass Spectrometers (HPLC-MS/MS), High Pressure Liquid Chromatography-Inductively Coupled Plasma-Reaction Cell-Mass Spectrometer (HPLC-ICP-RC-MS), Fourier Transform Infrared Spectrophotometer (FTIR), Raman Spectrometer, Differential Scanning Calorimeter (DSC), Freezers, Refrigerators, Centrifuges, and Solid Phase Extraction systems.
  - Radiation Laboratories – Tests for Alpha/Beta/Gamma e-ray emitters in any environmental or food matrix. Equipment used includes Liquid Scintillation Counters (LSC), Gas proportional counters, High performance germanium gamma spectrometers, Alpha Spectrometers, Molten salt fusions, Muffle furnaces, drying furnace, Inductively Coupled Plasma-Mass Spectrometer (ICP-MS), Centrifuges, Freezers, Refrigerators, and Solid Phase Extraction systems.
- Provide storage spaces for the ELS that will handle current space requirements and still have room for growth. The records storage area should be high density. Adequate chemical/supply storage is to be located in each laboratory. Storage space for the radiation laboratory should also include secure space for storing radiation standards as well as samples. Lockers for staff's personal items is required in a designated area.
- Provide office space that meets the existing and new staffing requirements of the ELS. The office space for general lab staff should be aesthetically pleasing and designed around the open office concept. This area should have several private areas for confidential phone calls or meetings for up to three staff members. Supervisors and Managers are to have offices.
- Provide several meeting spaces for up to 15 staff. These spaces can have movable partitions to allow for large staff meetings if located next to each other. These large meeting spaces will be used by the whole PHL so they should be located close to the main hallway. Several spaces for 4 to 6 staff should also be incorporated into the new wing. AV hookups and connections should be available in all meeting spaces.
- Provide lab spaces that are aesthetically pleasing and comfortable to work in. This would include being environmentally comfortable, natural light if possible, well lit, low ambient noise, and a color scheme that is comfortable to be in eight hours a day. The laboratories will have 12-16 Chemical Fume Hoods and 3-4 Class 2 Biosafety cabinets. There will be an open laboratory for grinding/homogenization/extraction/dissolution, an open laboratory for separation/filtration/centrifugation/aliquoting, an open lab for solid phase extraction/evaporation/reconstitution separation, an open laboratory for 3-HPLC-ICP-RC-MS, an open laboratory for 4-GC-MS/MS and an open laboratory for 4-HPLC-MS/MS. How many of the functions can be combined into the same open general laboratory space will be further explored with laboratory staff during programming and schematic design phases. The open laboratories should be designed to be flexible and capable of being arranged in different configurations as the laboratory's needs change.
- The mass spectrometers should be close to the laboratory areas that they serve but in a separate room. The rooms with mass specs have to be environmental controlled for high heat output and will have a Sapphire fire suppression system instead of a wet sprinkled system.
- There will be an enclosed laboratory for shellfish shucking and processing. This would include large sinks and adequate benchtop areas. In the shellfish area there will need to be an enclosed mouse colony and an enclosed Mouse Bioassay room. The mouse area will need its own ventilation system.
- The radiation prep area will consist of closed laboratories for molten salt fusion with at least one Perchloric acid wash-down Chemical Fume Hood and one Hydrofluoric Acid/Hydrofluoric Acid Vapors compatible Chemical Fume Hoods. SPE stations with ventilation, and acid waste neutralization stations with low P-Vacuum ducting. The Alpha, Beta, and Gamma counters are in a separate enclosed room with switch cabinet and data acquisition computer stations. The Liquid Scintillation Counter (LSC) room will also be enclosed with room for 6-LSCs. The room will have the ability to be darkened and should not be on an outside wall with windows. Both the Alpha, Beta, and Gamma counting room and the LSC room will have a Sapphire fire

suppression system. The Alpha, Beta, and Gamma counting room shall be on a thickened slab-on-grade capable of supporting weight of approximately one ton.

- The Chemical Terrorism (CT) group will need a secure, restricted access, closed laboratory that is a minimum of 12'x12'. It will include one 4' BSC and one 4' CFH and locking storage cabinets for evidence and controlled substances.
- Ensure that design and construction are of the highest quality. The PHL will only get one shot at building this major addition and it must be completed to last for 50 years with normal maintenance.
- Complete the project on time and on budget. The budget was developed during the previous biennium and construction costs are rising in the Seattle area due to the high volume of building projects. The State's capital budgets do not recognize the need for more money to build a project.
- Construction will take place within and around a fully functioning, 24/7 laboratory building. Design should think about how construction will affect the staff continuing to work during the construction process.
- Mechanical systems should be as efficient and sustainable as possible. Systems such as the AirCuity DCV system and chilled beams should be employed where possible to bring down operating costs. The State of Washington is moving toward a Zero Net Energy policy for all new state buildings. The addition needs to be ZNE or ZNE-C.
- Electrical systems, such as lighting, should use as little energy as possible. LED lighting, lighting controls and other energy saving devices should be incorporated into the design.
- Security should include CCTV cameras, card readers, and glass breaks that match the PHL's existing system. Fire notification devices should meet all code requirements.
- Lab design should be as flexible as possible to meet changing program needs without needing to add additional space. This would include movable casework and adequate infrastructure to accommodate such changes to the lab space.
- Lab finishes should follow the BMBL guidelines for BSL2 laboratories. This would include such items as sheet vinyl flooring with self-cove base, adequate lighting for all activities, sinks and eyewashes, and cleanable surfaces and spaces. Storage areas to also have sheet vinyl flooring with coved base.
- Conference room finishes to have carpet tiles with rubber base, adjustable lighting levels, and painted walls.
- The exterior shell of the building should exceed the energy code as a major component of meeting the ZNE requirements. Aesthetically the outside walls should blend with the existing building and be a catalyst for design of future projects in the master plan (see newborn screening additions). Glazing should be installed to allow light into the buildings, especially in the new office additions. South facing glazing should have sun screens of some type.
- Landscaping should blend with the existing. Swales, and other sustainable landscaping devices should be utilized. The existing irrigation system should be modified as required but native and low water plants should be used to conserve water.
- The media center should have lighting, sound systems, and visual equipment appropriate for media releases at the PHL. It should have a location where information can be dispersed to the press and permanent seating for media personnel. The media center should also have a control room where all systems can be monitored.

#### 4.0 Occupancy Requirements

The new lab area will be occupied six days a week from approximately 6:00 am to 6:00 pm. Due to the critical nature of the screening that takes place in the wing, all systems should perform in all seasons to keep staff comfortable and allow work to continue in all climate conditions. Currently there are 25 staff in the ELS program. Staff break down is 1 office director, 1 administration assistant, 3 supervisors, 9 leads, and 10 lab staff.

The large conference areas will be used by all PHL staff. The small conference areas and huddle rooms located in the new wing will be used mainly for ELS meetings. These spaces will typically be used from 7:00 am to 6:00 pm.



The media center will be used by staff for Agency Health Announcements to both the written and multi-media press. This space will need a presentation space for up to 8 people and seating for 15 in theater type seats.

## 5.0 Performance and Design Criteria

5.1 The project will be designed to Local, State, Federal, and Association codes that apply. These codes include but are not limited to:

- City of Shoreline latest codes and local amendments
- State of Washington codes, per the Washington State Legislature
- Federal Codes including ADA & OSHA
- National Fire Protection Association (NFPA) Codes, Standards and Recommended Practices
- American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) standards, handbook series, and recommendations.
- IBC codes

5.2 Environmental Conditions

- Environmental equipment should be as energy efficient as possible and contribute to the overall ZNE goals for the building. Environmental guidelines such as *ANSI Z9.5 American National Standards for Laboratory Ventilation*, *ASHRAE Standard 90.1*, and any other relevant performance standards that affect energy consumption should be used.
- Building temperature set points to be between  $68^{\circ} \pm$  to  $72^{\circ} \pm$  with a RH of 50% year round. Room-by-room design conditions, including temperature set points, pressure relationships and minimum ventilation rates, and humidity to be finalized during basis of design development.
- HVAC to be provided by a new mechanical system. Low ACH should be incorporated into entire wing if possible. Safety for lower ACHs to include expansion of the Laboratory's Aircurity system. Chilled beams to be used for heating/cooling in new areas where appropriate. The system is a one pass system, VAV for all ventilated areas. The new Heat Recovery Unit (HRU) will have hot water heating coils with the hot water supplied by the new central plant now being designed. The ventilation system uses 100% outside air and is a one pass system.
- Controls for the HVAC system will be direct digital control (DDC) with the current Allerton system to be expanded to control the new system. The PHL's Skyspark monitoring system will be expanded to monitor the new system.
- The new HVAC system will be zoned to separate space types with distinct conditioning demands, ensuring that comfort is provided while maximizing energy efficiency. HVAC systems shall maintain comfort conditions that meet the criteria stated in ANSI/ASHRAE Standard 55-2013. Systems that support space conditioning for occupant comfort in offices and conference areas shall be separate for systems utilized to meet laboratory conditioning and air filtration demands.
- The new HVAC system shall be installed in a mechanical penthouse along with associated pumps, valves, ducting, and electrical components necessary to run the system.
- HVAC-related background sound not to exceed NC 35 in office/conference areas and NC 45 in laboratory areas. Provide wall designs to address noise concerns at areas sensitive to noise transmission.
- New fume hoods and associated exhaust fans will be required in the new space. New hoods to be energy efficient with night time setback features. Locate fume hoods following best practices such as away from doors, air supply diffusers, or exit paths.
- Minimum face velocity for low flow/high performance CFHs is 75 FPM. Minimum face velocity for traditional CFHs is 100 FPM.

### 5.3 Chilled Water System

- Cooling is provided by two York 200 ton variable speed screw type chillers which provide chilled water flow, and utilize R143a refrigerant operating in a lead/lag mode. These chillers were installed and commissioned in 2007.
- A secondary chilled water system was installed in 2011 to provide chilled water for the chilled beams installed during the HVAC upgrades of the C & E-wings. The system consists of 2-variable speed pumps, a heat exchanger, piping and valves connecting to the existing cooling towers system, and 2 thermal tanks to increase overall system volume. The loop maintains 56°F chilled water to serve the chilled beams. Where possible this system is to be expanded into the new addition.

### 5.4 Building Automation System (BAS)

- Control system, panels, conduit and wiring for the BAS, fire alarm, smoke management, security systems and lighting controls must tie into the existing system for the building. The current BAS system is Allerton Compass provided by ATS technologies

### 5.5 Electrical Systems

- Indoor lighting to be LED. Controls will be vacancy-sensing with manual override. The lighting/dimming system should be able to “harvest” lighting in all perimeter areas. Lumens and Color should be appropriate for installed space. Lighting to be 277V. Outdoor lighting should match existing LED lights or be design appropriate. Levels and color will be agreed upon during BOD development. Evaluate the feasibility of daylight harvesting when designing lighting solutions.
- Design lighting circuits and controls to allow scheduled time-based shutdown with occupancy override.
- All task lighting shall be LED-based and have individual controls.
- Provide 208VAC and 20A 120VAC to all locations as required for equipment hookups. Exact requirements for equipment will be based on the equipment inventory worksheets provided by lab staff.
- Provide 20A 120 VAC in office/conference areas as required. Provide smart or switchable outlets for all plug loads that can be power-saved during periods of non-occupancy. Locations should facilitate flexibility of use of the space.
- Provide outlets in storage spaces as defined during the predesign process. Minimum requirements to be as defined in the electrical code.
- Electrical panels, sub-panels, lighting panels to be located for ease of access by maintenance staff.
- Identify with staff during pre-design any non-standard power requirements.
- Provide expansion of existing Skyspark metering system to new wing. System shall track all major energy uses and equipment loads in the new wing. Verify with owner current systems currently monitored. Modify existing/new Skyspark system to allow remote access, extraction and analysis of energy data by the building operations staff.
- Electrical consultant to identify any possible Seattle City Light rebates for the project.

### 5.6 Plumbing

- New DI water system to match existing Elga DI water systems already installed in lab. New system to be sized appropriately for intended use.
- Provide sinks as required for lab processes. All sinks to have WaterSaver deck mounted faucets with wrist blade handles and foot-operated mixing valves. Each sink to also have Guardian emergency eyewash.
- Install backflow preventer, such as an anti-siphon vacuum breaker, on all lab sinks, to avoid contamination from lab activities.



### 5.7 Sustainability Goals

- This project will be designed to be Zero-Net-Energy (ZNE) or Zero-Net-Energy Capable (ZNE-C) and will be verified through 12 months of performance measurement through use of the International Living Future Institutes (ILFI) Zero Energy certification program or some similar certification program.
- It is the intent that the PHL will utilize a solar photovoltaic(PV) energy system for this project (see McKinstry 2019 Preliminary Solar energy study-Rev.2)
- All Laboratory equipment specified as part of this project is to be purchased with energy efficiency as a primary consideration. *Energy Star* rated equipment will be given priority where applicable.

## 6.0 Building Site

### 6.1 General

- Utilize existing site infrastructure whenever available, at location closest to service entrance.
- Design utility pathways to allow for installation, maintenance, commissioning, replacement and decommissioning of equipment per manufacturer's recommended O&M requirements.
- Research and identify existing underground elements such as utilities, vaults, tunnels, etc. to avoid unscheduled damage during construction.
- All new wing utilities will connect to existing utilities within the existing building if possible.

### 6.2 Fire Protection

- Existing fire supply lines enter the building in M-wing. A PIV valve is located on the east side of the building. Connect new lines to existing fire system.
- Fire protection system to include horns, strobes, and horn/strobes as called out per code and the Shoreline Fire Department.
- Any room/area that will be used for high cost electronic equipment will have a Novec 1230 fire protection system instead of a traditional wet, sprinkler system.

### 6.3 Steam

- Currently the PHL is designing a new central boiler plant to replace the Fircrest steam system. The new heating system will be hot water. The new plant will be a ground source heat pump. All current steam systems will be replaced to accommodate hot water.

### 6.4 Water/Sewer

- Water enters the building on the east side of M-wing at the same location as the fire protection main. Connect waste to existing PHL waste system on the west side of the building. Use chemical resistant piping for lab waste. Label laboratory waste piping "Lab Wastewater". An Acid Neutralization Tank (ANT) to be installed on all lab waste before it enters the public sewer system. The ANT to have a PH monitor attached to the tank to monitor PH levels. PH readouts should have the ability to be tracked by the maintenance staff.

### 6.5 Landscape

- Provide tree protection at drip line and critical root zones during construction period. Verify tree requirements with Shoreline Building Dept. (See Master Plan tree retention plan)
- Limit impervious cover and removal of native vegetation to allow for increased filtration and infiltration of storm water run-off. Substitute or replace lost capacity. Extend existing swales and other water mitigation elements for added building square footage.
- Utilize native and adapted planting to reduce watering requirements
- Repair/replace/modify irrigation system where affected by building additions. Provide options for using grey water in the irrigation system.
- Provide new pedestrian pathways to replace any paths disrupted by new additions.

## 7.0 Transportation and Parking

- 7.1 Work with PHL administration to determine additional parking requirements and location of new parking if required. If new vehicular entrance is required off of 150<sup>th</sup> NE, work with PHL administration and City of Shoreline for new location. (See existing master site plan for new location).
- 7.2 Understand and mitigate project's impact on parking and vehicular circulation.
- 7.3 Meet ADA requirements as part of project design and during construction.

## 8.0 Building Envelope

- 8.1 General – The building envelope shall be designed to endure for at least 50 years. The design and construction shall provide an appropriate level of quality to ensure continued use of the facility over that time period with the application of reasonable preventative maintenance and repairs that would be industry acceptable.
- 8.2 Goals – The building envelope is crucial to ensuring an energy efficient building. The building envelope or facility's shell consists of exterior walls, roof, foundation, doors, windows, dampers, other openings. The objectives for the building shell are:
  - Foundations to be concrete with slab on grade floors.
  - The outside wall should aesthetically blend with the existing building and be a catalyst for design of future projects in the master plan. (see N-Wing addition)
  - Glazing should be installed to allow light into the building spaces and allow occupants to view the outside. This is especially true in the office/conference area. Windows should have a low U-value.
  - The exterior shell of the building should exceed the energy code. All exterior envelope elements will be a major element in obtaining NZE or NZE-C certification
  - The wall system should minimize infiltration, both outside leaking in and conditioned air leaking out to reduce conductive energy transfer through the building shell. The wall system should also minimize conductive energy transfer to the outside.
  - Control humidity by maintaining proper movement of water vapor in and out of the building.
  - Roofs are assumed to be flat with roofing products that match existing. New construction should not invalidate the existing roof warranty.
  - Framing should match existing building. Tube steel columns with wide flange beams, and open-web steel roof joists. Infill wall studs are 16 gauge steel.
  - Any exterior window systems and entries to have reflective coating.

## 9.0 Interior Finishes

- 9.1 General – Interior lab finishes should be selected with aesthetics and quality in mind while still meeting BMBL requirements.
- 9.2 Floors – Laboratory floors should be sheet vinyl with a self-cove base. Self-cove base should have metal termination strip at top of base. Office/Conference areas to have glue-down sheet carpet or carpet tiles. Carpet adhesives to be non-toxic, low odor and VOC, solvent free. Rubber base to be utilized in office/conference areas. Restroom floors to be unglazed ceramic floor tile on thin-set mortar.
- 9.3 Walls – Laboratory, office, and conference room walls to be 5/8" Type "X" GWB with level 4 finish if exposed to view or level 5 finish if dark paint is used. Restroom walls to be tile finish to minimum of 4' high. Provide proper backing on tile walls.
- 9.4 Ceilings – Laboratory, office and conference room ceilings to be acoustical tile. Restroom ceilings to be 5/8" GWB. Storage areas may be left open and a decision will be made during pre-design. Ceilings in rooms with the Novec fire system to be 5/8" GWB.

- 9.5 Casework – wood faced or laminate faced cabinets (to be decided during pre-design) with full depth shelves, flush faced, 100 lbs. full extension ball bearing glides, stainless steel hinges and pulls with Durcon 1” epoxy resin countertops. All casework to be plywood.

## **10.0 Emergency or Backup Power**

Emergency power is supplied by a 1500KVa diesel powered generator connected to a 5,000 gal. fuel tank. The generator has the ability to run the lab fully for a week on 5,000 gallons.

## **11.0 Telecommunications and A/V Systems**

- 11.1 General - DOH/HTS telecommunication standards apply to all installations. IT will determine and assign all IP addresses. If approved by HTS, wireless systems will be employed in all office/conference locations.
- 11.2 All staff workstations to have duplex outlet with R45 jacks. An adaptable data system will be employed in open office areas to provide flexibility for future requirement.
- 11.3 Wiring to be CAT6, Plenum rated, labeled and neatly installed with access for maintenance. All wiring over hard ceilings to be in conduit.
- 11.4 Provide Speakers in all locations for mass notifications
- 11.5 Ensure coordination of A/V design and installation/integration in new conference rooms.

## **12.0 Safety & Security**

- 12.1 Access Control systems – The PHL uses the Lenel access control system. All new access controls to match existing system.
- 12.2 Access cards or proximity readers shall restrict access into the building and into certain rooms. Exact locations of proximity readers to be determined during design development.
- 12.3 Security Cameras – The PHL uses the Avigilon security camera system. The current system uses IP cameras and the building LAN system. HTS will assign IP addresses to the cameras.

## **13.0 Hazardous Materials**

- 13.1 Building materials – The original building was built in 1985 after asbestos was outlawed. The new addition to have low VOC or no-VOC materials.
- 13.2 Acids are sent by lab waste to the dilution tank where they are monitored for PH and then sent to the sewer system in a balanced state
- 13.3 Hazardous materials are stored in the wings in small quantities. They are removed from PHL by a certified agent. See WSPHL Chemical Inventory list – latest version.

## **14.0 Furnishings and Equipment**

- 14.1 Contractor furnished and installed equipment types(including but not limited to):
- Chemical Fume Hoods
  - Laboratory Casework and Shelving. This includes moveable casework and shelving.
  - Storage room shelving and counters.
  - High density records storage and shelving
  - DI water system
  - Network electronics (Data closet)
- 14.2 Owner Furnished, Contractor Installed equipment types. (including but not limited to):
- To be determined during design
- 14.3 Owner Furnished, Owner Installed equipment types. (including but not limited to):

- Computers and Office machines
- Telephone handsets
- Moveable furniture (stools, chairs, free standing tables, file cabinets)
- Staff workstations
- Large laboratory equipment

## **15.0 Commissioning, Inspection, and Q.A.**

The Commissioning (Cx) consultant will be hired by the owner and independent of the design and construction teams and will be responsible for maintenance of this OPR. The scope of work will include

- OPR and BOD review
- Documents Design Review
- Design intent Document
- Commissioning Plan Development
- Construction Observation including pre-functional and functional testing.
- Commissioning Meetings and Commissioning Administration
- Commissioning on Site Inspections and Testing
- Review of Owner testing and O&M Manuals
- Final Commissioning Report

## **16.0 Construction Completion and Turnover**

- Inspection, testing, and commissioning culminates in a declaration of Substantial Completion by E&AS. (see final completion checklist) This date establishes both the beginning of the warranty period and commencement of operation and maintenance by the PHL maintenance staff. Move-in of staff and their personal belongings will not take place until all “punchlist” items are completed.
- Final project acceptance is not completed until the E&AS project checklist is completed.

## **17.0 Facilities Requirements**

- Project documentation requirements – in order to properly install, start-up, operate, troubleshoot and maintain the systems for the useful life of the building accurate and accessible documentation is required. The PHL requires all documentation to be electronic and tailored to the specific components installed. The timing of completion of key documentation is essential
  - Draft System manual within 30 days of 50% construction completion
  - Training Material 30 days prior to the system start-up
  - Final Systems manual 30 days after construction completion.
- Warranties for systems shall not be for less than one year after substantial completion. Building Automation System service agreement to be for two years.
- Spare parts to be provided at the turnover of this project shall be determined during DD
- Training will be provided by the construction team prior to building turnover and shall consist of
  - Classroom sessions, which shall provide instruction on system overview/theory of operation and also provide an overview of the operation and maintenance manuals.
  - Hands-on sessions, which shall provide instruction at the actual equipment including demonstration of startup, shut-down, safeties, maintenance procedures, and setup and use of building automation system trend reports.
- Engineer shall instruct the facilities staff on the design and operation intent, sequences of operation, setpoints and alarms.

## 18.0 Owner Training

- Onsite training for the Owner's operators and users shall include a description and overview of systems, not just the components and equipment that comprise each system.
- Training – held in conjunction with commissioning – should include general orientation and reviews of the written O&M instructions, relevant health and safety issues or concerns, operation in all possible modes, preventative maintenance, and common troubleshooting problems & solutions.
- Building systems that operators or users will be trained include:
  - HVAC systems
  - BAS/controls
  - Electrical systems
  - Lighting controls
  - Security systems
  - Laboratory equipment such as CFHs
  - Fire alarm system and Fire protection system
  - Other systems not yet identified

## 19.0 Energy Efficiency Goals

- The building is to be constructed as a ZNE or a ZNE-C certified building. It is the State's desire to reduce greenhouse gases, use low embodied carbon material alternatives, and how building design will affect future energy use.
- Provide energy generation through the use of solar PV to lower the EIU as much as possible.
- Achieve LEED Silver certification or higher.

## 20.0 Post Occupancy & Warranty

The Cx consultant, GC, and all subcontractors whose systems were commissioned shall meet with the Owner's O&M staff quarterly during the first year after Substantial Completion to offseason test, optimize, and otherwise troubleshoot all commissioned systems.

Also, an onsite meeting will be conducted 11 months after Substantial Completion to review performance and quality of the facility with all affected parties – Owner and Users, the design team, and the GC and subs.

## 21.0 Owner's Project Requirements: Version History

The following is a summary of the changes made to the Owner's Project Requirement document throughout Pre-Design, Design, Construction, and Occupancy and Operations. This information is critical to understand and document the trade-offs made and the resulting impact on the project.

Rev. No.	Date	Description of Revisions
1	20/01/06	ELS Revisions
2	20/01/16	Revisions per Owner/DES
